

# THE AEROPLANE SPOTTER

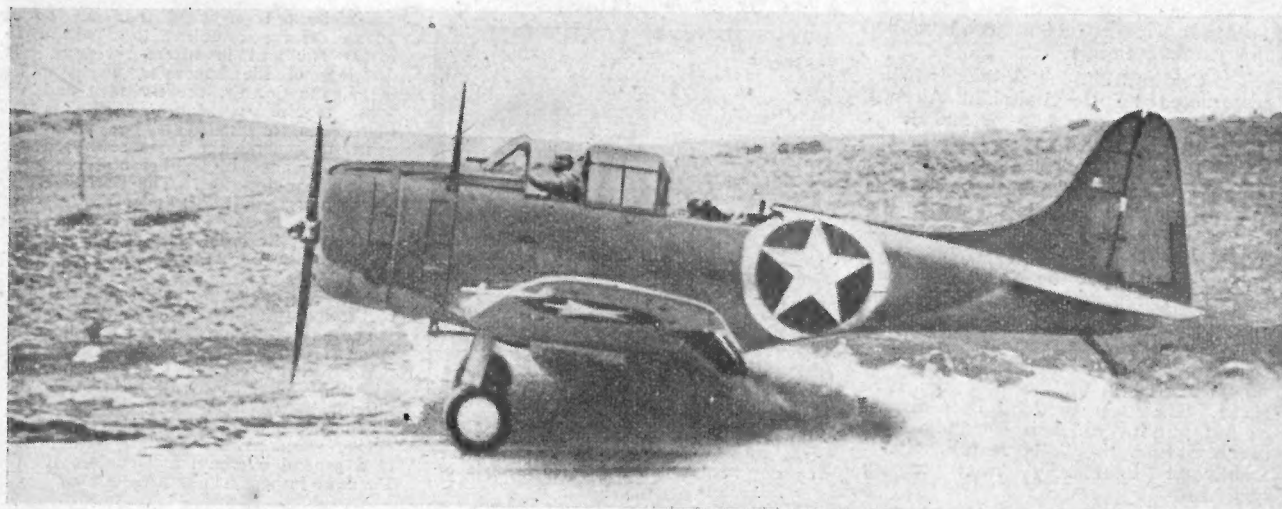
FOR THE ALERT

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Technical Editor of "THE AEROPLANE."



DAUNTLESS—A Douglas Dauntless taxis out in Algeria. This dive bomber is in service with both the U.S. Army (A-24) and U.S. Navy (SBD-3).

HITHERTO American military aircraft have been designated only by numbers and not by names, except those the individual manufacturers bestowed on their own products. Some time ago the U.S. Navy decided to name as well as number their aircraft and now the United States

Army and the United States Navy have agreed jointly on a system of naming which does much to clear up confusion.

All the American names given herewith now apply to both the U.S. Army and Navy versions of the various aeroplanes.

CONSTRUCTOR AND U.S. NAME (Army and Navy)	MAKERS' DESIGNATION	U.S. ARMY No.	U.S. NAVY No.	BRITISH NAME	PURPOSE	CONSTRUCTOR AND U.S. NAME (Army and Navy)	MAKERS' DESIGNATION	U.S. ARMY No.	U.S. NAVY No.	BRITISH NAME	PURPOSE
Aeronca Grasshopper	Defender	L-3c			Liaison	Fairchild Forwarder	24-w41	C-61	GK-1	Argus	Transport
Beech Kansas	Model 18	AT-11	SNB-1		Trainer	Fairchild Yankee-Doodle		AT-13			Trainer
Beech Navigator	Model 18D	AT-7	SNB-2		Trainer	Grumman Avenger		AT-14			Trainer
Beech Traveler	Model 17R	C-43	GB-1		Transport	Grumman Wildcat			TBF-1	Martlet	Torp'doBmb.
Beech Voyager	Model 18	C-45A	JRB-2		Transport	Lockheed Constellation		C-69	F4F-4		Fighter
Beech Wichita		AT-10			Trainer	Lockheed Hudson	414	A-29		Hudson	Transport
Bell Airacobra	P-400	P-39		Airacobra	Fighter	Lockheed Lightning	322	P-38		Lightning	Bomber
Boeing Caydet	Stearman	PT-13A	N2S-1		Trainer	Lockheed Lodestar	18	C-56		Lodestar	Fighter
Boeing Caydet	75L-3	PT-17	N2S-3		Trainer	Martin Marauder	179	B-26		Marauder	Transport
Boeing Grewmacker	Stearman	AT-15			Trainer	Martin Mariner	162	PBM-3		Mariner	Bomber
Boeing Flying Fortress	299	B-17		Fortress	H. Bomber	N. American Mitchell	NA-82	B-25	PBJ-1	Mitchell	Patrol Bmbr.
Brewster Buccaneer	340	A-34	SB2A-1	Buffalo	Dive Bomber	N. American Mustang	NA-73 Apache	P-51		Mustang	Bomber
Brewster Buffalo		A-34	F2A-2	Crane	Fighter	N. American Texan	NA-16	AT-6A	SNJ-3	Harvard II	Fighter
Cessna Bobcat	T-50T	AT-8		Crane	Trainer	Piper Grasshopper		L-4B	ME-1		Liaison
Cessna Bobcat	T-50T	AT-17		Catalina	Patrol Bmbr.	Republic Lancer		P-43			Fighter
Consolidated Catalina	Model 28	OA-10	PBY-5	Coronado	Patrol Bmbr.	Republic Thunderbolt		P-47		Thunderbolt	Fighter
Consolidated Coronado	Model 29		PB2Y-3		Bomber	Rean Recruit		PT-22	NR-1		Trainer
Consolidated Liberator	Model 32	B-24	PB4Y-1			Timm Tutor		PT-160K	N2T-1		Trainer
Consolidated Liberator						Vega Ventura		Vega-37	PV-1	Ventura	Bomber
Liberator Express	Model 32	C-87			Transport	Vought-Sikorsky					
Curtiss Caravan	Caravan	C-76			Transport	Vought-Sikorsky Corsair				F4U-2	Fighter
Curtiss Commando	CW-20	C-46	R5C-1		Transport	Vought-Sikorsky Excelsior	VS-44A		JR2S-1		Transport
Curtiss Falcon	CW-22B		SNC-1			Vought-Sikorsky Kingfisher	VS-310		OS2U-3	Kingfisher	Scout
Curtiss Helldiver	Helldiver	A-25	SB2C-1	Helldiver	Dive Bomber	Vought-Sikorsky Vindicator	V-156		SB2U-2	Chesapeake	Dive Bomber
Curtiss Seagull	Seagull		S03C-1	Seamew	Scout	Vultee Reliant	Stinson SR-10	AT-19		Reliant	Transport
Curtiss Warhawk	Hawk 87	P-40		Kittyhawk	Fighter	Vultee Sentinel	Stinson 76	L-5			Liaison
Douglas Bolo	DB-286	B-18		Digby	Bomber	Vultee Valiant	Valiant 54	BT-13	SNV-1		Trainer
Douglas Dauntless		A-24	SBD-3		Dive Bomber	Vultee Valiant	Valiant 54	BT-15	SNV-2		Trainer
Douglas Devastator			TBD-1		Torp'doBmb.	Vultee Vigilant	Stinson 74	L-1		Vigilant	Liaison
Douglas Dragon	DB-320	B-23			Bomber	Vultee Vengeance	Stinson 72	A-35		Vengeance	Dive Bomber
Douglas Havoc	DB-7B	A-20c	BD-2	Boston III	Bomber						
Douglas Skymaster	DC-4A	C-54	R5D-1		Transport						
Douglas Skytrain	DC-3	C-47		Dakota I	Transport						
Douglas Skytrooper	DC-3	C-53	R4D-1	Dakota II	Transport						
Fairchild Cornell	M-62	PT-19A		Cornell	Trainer						
Fairchild Cornell	M-62	PT-23		Cornell	Trainer						

# NEWS OF THE WEEK

## MOSQUITO MARK

THE DE HAVILLAND Mosquito high-speed day-bomber is officially designated the Mosquito IV. This mark number was released for publication last week. Mosquitoes used as intruder-fighters are now operating from Malta.

## NEW TYPES IN NORTH AMERICA

DEVELOPMENTS in the design of training and military aircraft are made public by "Canadian Aviation."

A new version of the Avro Anson, which has been the standard navigational trainer in Canada since the inception of the Commonwealth Air Training Plan, has been subjected to new detail design which incorporates a moulded plywood monocoque fuselage from the cabin to the tail. With a longer range of 1,400 miles, a larger undercarriage, and powered with two Pratt and Whitney Wasp Junior R-985-AN14B motors and hydromatic aircrews, this version is known as the Anson V. It has a maximum performance at 5,000 ft. Another version, the Anson VI, is to be built as a bombing and gunnery trainer.

The Curtiss SB2C-1 Helldiver is being constructed by the Fairchild Aircraft Company as a scout bomber and designated SBF-1.

The U.S. Army version of the Noorduyn Norseman, which is to be used as a transport aeroplane, is known as the C-64. This improved type has increased weight, with additional payload.

A modified P-51, the North American Mustang, is reported in construction for the U.S. Army Air Forces as a dive-bomber.

Vought-Sikorsky Corsair fighters are now reported in service with the U.S. Navy. Their top speed has been quoted as 366 m.p.h., which is certainly more accurate than the "400 m.p.h. plus" mentioned unofficially from certain quarters.



AN ATTRACTIVE LAYOUT.—Two pages are devoted to each aeroplane in "Aircraft of the Fighting Powers." Above is an example of layout.

## A GOOD SHOW

AIRCRAFT OF THE FIGHTING POWERS, Volume III (1942 Edition). 11½ in. by 8½ in. 160 pp. 144 pghs. 243 line drgs. One coloured print. Edited by D. A. Russell, M.I.Mech.E. Compiled by H. J. Cooper and O. G. Thetford. Published by The Harborough Publishing Co. Ltd., Leicester. Dec., 1942. Price 21s. od.

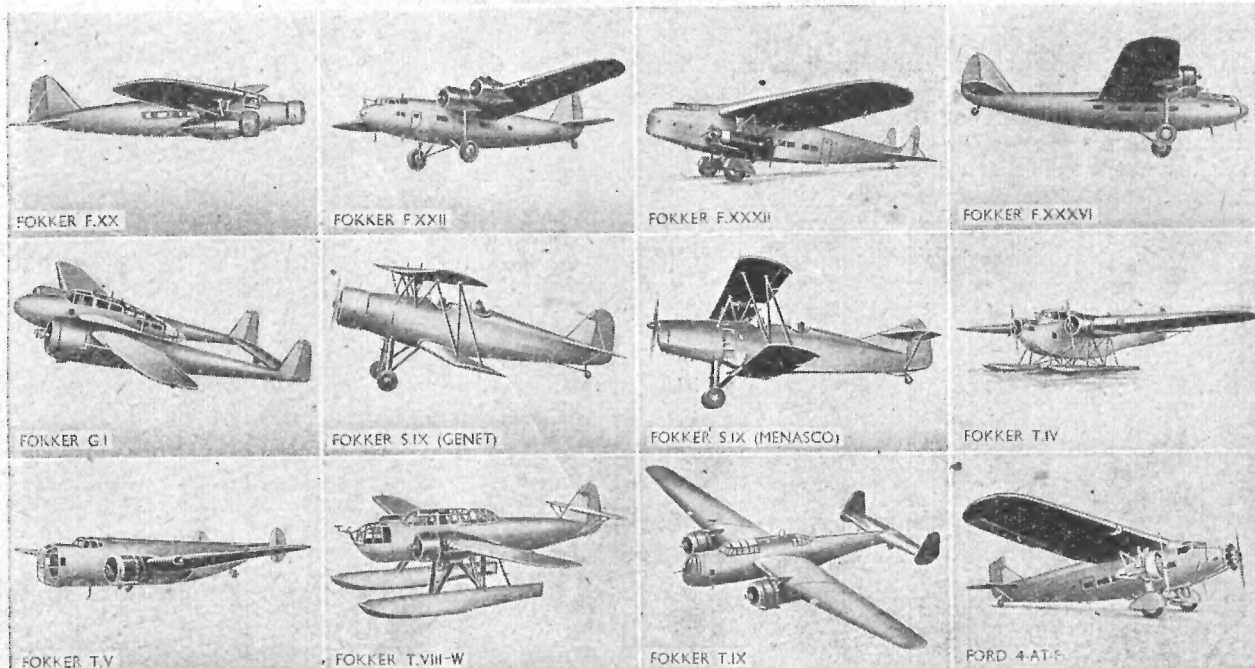
THE NEW EDITION of this book contains photographs and 1/72 scale outline drawings of 81 Allied and enemy aeroplanes including some Japanese and Russian types. It is much the best of the three volumes and has attained a high standard of excellence.

A great deal of relevant information is arranged neatly and concisely, the printing is good and the paper of fine quality, although the price seems rather higher than some people can afford. In general the drawings and data are commendably accurate and the enterprise of the editor and publishers is well reflected in the replacement of somewhat inaccurate G.A. drawings of the Mosquito with a revised version after the first few hundred copies, despite the expense involved.

The book is so good that one or two points deserve comment to attain a still higher standard in future revisions. The drawings of the Lancaster, Fortress, Bermuda, the Corsair, the Bv 141B and Ventura require revision. Although the illustration of undercarriages is a good point, in general the tyres seem too thin. The Hurricane IIb bomber now carries 12, not 10, machine-guns. The Fortress II has nine-cylinder, not 14-cylinder motors. The "S.M.94" is now officially the S.M.84, despite the inconsistencies involved in this nomenclature. Apart from these minor points, the information betokens much painstaking research and very careful study of the more authentic aeronautical journals. The advertisements on the outside covers seem a pity.

We heartily commend "Aircraft of the Fighting Powers" to all keen students of aircraft. We hope that the two earlier volumes will now be revised to attain a similar standard, as they are both in need of a general overhaul and contain most of the more important aircraft.—P.G.M.

## THE SPOTTERS' A.B.C.—XLVIII



THE FINAL FOKKERS.—The most advanced Fokker tri-motor was the F.XX of 1928 built to carry 12 passengers. It had a retractable undercarriage [576 and, with three 712 h.p. Wright Cyclones, had a top speed of 202 m.p.h. The four-motor F.XXII was designed as a 22-passenger transport and is now being used in Great Britain for air-observer training. With four P. and W. Wasp motors it has a top speed of 183 m.p.h. The undercarriage is fixed. The F.XXXII four-motor transport was built by the American Fokker Company and was the most luxurious air transport of its era—1929. It carried a crew of four and 32 passengers. With four 525 h.p. P. and W. Hornets in two tandem pairs it had a top speed of 147 m.p.h. The F.XXXVI was a scaled-up F.XXII for 32 passengers. Top speed 186 m.p.h. on four 700 h.p. Cyclones. Only one was built and this crashed in Scotland. The Fokker G.I, the "Faucheur," was a two-motor fighter-bomber with eight fixed and one movable machine-guns and 880 lb. of bombs. The maximum speed with two Bristol Mercury VIIIs was 295 m.p.h. One was flown to England in 1940. The S.IX was a two-seat trainer. With a 165 h.p. Genet motor the top speed was 112 m.p.h., with a 168 h.p. Menasco 120 m.p.h. The Fokker T.IV was a torpedo-bomber seaplane. Bomb load 1,760 lb. or one torpedo slung under the fuselage. Maximum speed (Cyclones) 161 m.p.h. The Fokker T.V was a two-motor medium bomber. Bomb load 2,200 lb. Maximum speed (Pegasus XXVI) 259 m.p.h. The T.VIII-W torpedo-reconnaissance seaplane has two Wright Whirlwind motors and a top speed of 165 m.p.h. A number was flown by Netherland crews with Coastal Command in 1941. The Fokker T.IX was the last of the line. With two Bristol Hercules motors it had a fairly high performance. Only one was built. The Ford 4-AT-F was in effect an all-metal development of the Fokker tri-motors. It appeared in 1929. The top speed was 130 m.p.h. on three 300 h.p. P. and W. Wasp Junior motors. The capacity was 11 passengers.

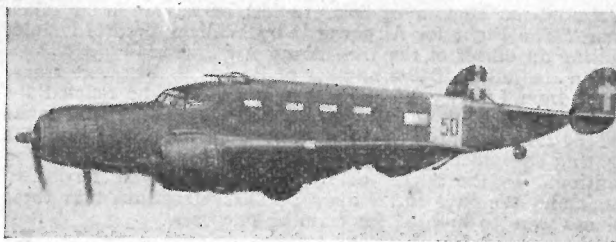


## AIRCRAFT IN THE NEWS—LXXVIII

## THE SAVOIA-MARCHETTI S.M. 84

FIRST reported in action against British shipping over the Mediterranean in November, 1941, the Savoia-Marchetti S.M.84 torpedo-bomber has been in constant use by the Regia Aeronautica ever since. Soon after its first appearance, the S.M.84 drew its first blood by scoring a torpedo hit on the battleship Nelson.

Although it has a new type number, the S.M.84 is basically the obsolete S.M.79 Sparviero, revitalised by a general aerodynamic "clean-up." Twin fins and rudders and a cantilever tailplane replace the ugly braced tail unit of the Sparviero. The humped appearance of the older machine has disappeared with the abandonment of the open gun position above and



behind the cockpit and the substitution of an electrically operated single-gun turret. Other points of difference are the improved cowlings of the Alfa-Romeo motors (Pegasus licence) and the tailwheel which is sometimes retracted.

The armament of the S.M.84 appears to be similar to that of the S.M.79, except that the dorsal 0.50-inch Breda machine-gun is now in a turret and the cannon firing forward over the centre airscrew has been removed. One machine-gun is in the ventral bulge and two hand-operated machine-guns fire from hatches in the sides of the fuselage. Two torpedoes are carried externally under the fuselage side by side.

The three motors are Alfa-Romeo 126 R.C.34 air-cooled radials, each developing 750 h.p. at about 11,000 feet.

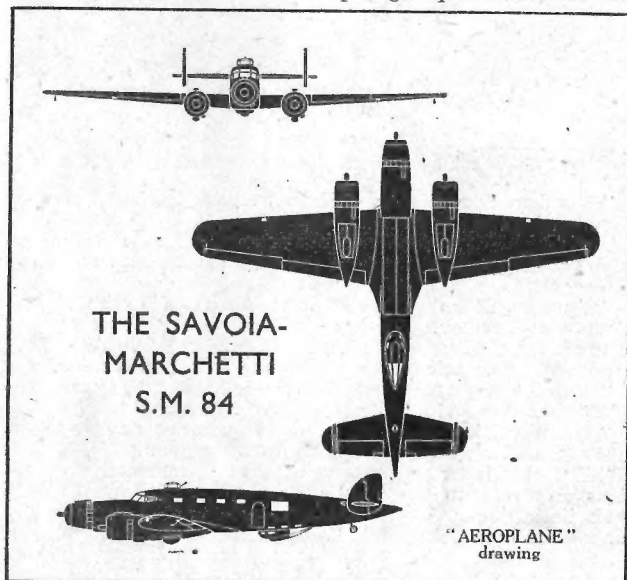
Although the Italians at one time gave the number of this machine as S.M.94 it is now officially designated the S.M.84 by the Regia Aeronautica despite the fact that this number was used previously for a two-motor transport (with a single fin and rudder) made by the same concern.

**DIMENSIONS.**—Span, 69 ft. 3 in.; length, 58 ft. 9 in.

**WEIGHT.**—Loaded, about 25,000 lb.

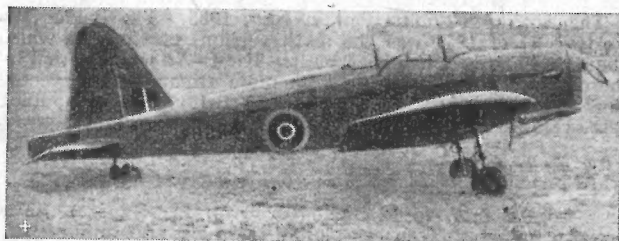
**PERFORMANCE.**—Max. speed, about 260 m.p.h. at 12,500 ft.; range, about 1,100 miles at 220 m.p.h.; service ceiling, 23,000 ft.

**POINTS OF RECOGNITION.**—Low-wing monoplane, with three radial motors and twin fins and rudders. Straight tapered wings with rounded tips. Fuselage projects aft of high-set tailplane. Undercarriage fully retractable.



## CIVIL IDENTIFICATION—LXXVIII

## THE MILES M-18, THE MAGISTER II



THE MILES M-18 (one 150 h.p. de Havilland Gipsy Major III motor) is a new basic trainer designed to succeed the Magister and is, in fact, sometimes named the Magister II. The chief difference between the Magister I (M-14) and the M-18 is the new type of thick wing with square-cut tips which has been produced after a great deal of research and gives a marked improvement in manoeuvrability and simplicity of control.

The cockpits of the M-18 are roomier than those of the Magister I, and the general layout has been much improved. Full night and blind-flying equipment is included.

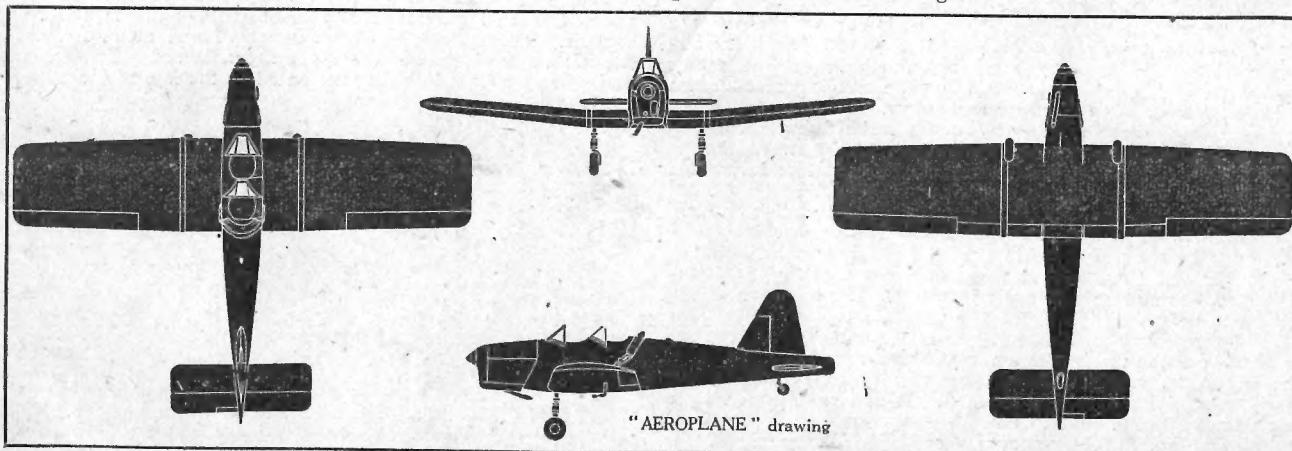
The M-18 is a two-seat low-wing monoplane of wooden construction with plywood covering. It has a single fin and rudder, with the fin built into the rear end of the fuselage and rear decking, and a fixed undercarriage with a single strut. Although cut-away spats and fairings are sometimes fitted, the M-18 is usually flown with unfaired legs. The M-18 is not in production at present.

**DIMENSIONS.**—Span, 31 ft.; length, 24 ft. 10 in.; height, 6 ft. 10½ in.; wing area, 183.2 sq. ft.; aspect ratio, 5.24.

**WEIGHTS.**—Empty, 1,306 lb.; loaded, 1,918 lb.

**PERFORMANCE.**—Max. speed, 145 m.p.h.; stalling speed, 39 m.p.h.; initial rate of climb, 1,280 ft. per min.; service ceiling, 19,000 ft.; duration, 3½ hrs. at 125 m.p.h.

**POINTS OF RECOGNITION.**—Square-cut low-wing monoplane with in-line air-cooled motor. Rectangular wing and tailplane with large triangular fin and rudder slightly ahead of the tailplane. Fixed undercarriage.



## THE FORTRESS I WITH THE R.A.F.

THE following was given by Major Al Williams in his syndicated column of Dec. 18 last as having been taken from "The Fight for Airpower" by William Bradford Huie, quoting an officer of the U.S. Army Air Forces:—

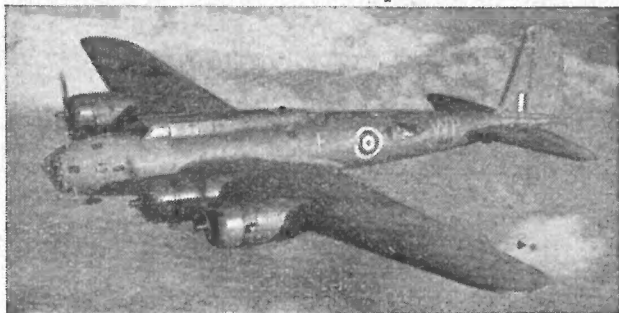
"In the fall of 1940 a number of Boeing B-17cs were transferred from Langley Field to Wright Field to be refitted for service in England. They were refitted with self-sealing tanks and 50-calibre guns. All the guns were hand-held and the sighting equipment rudimentary. . . . There was no tail gun position. In the Spring of 1941 these ships were ferried to England. We gave the British specific instructions that these 'planes were to be used for training purposes.

"I was in England when the 'planes arrived. We explained to the British our doctrine for the use of the 'planes. We told them that the crews had to be well-trained, that a crew should drop 200 practice bombs before attacking a real target; that the 'planes were designed to fly in formation for protective purposes; and that by using them as trainers, trained crews could be ready to operate the new, properly equipped Fortresses when we delivered them. For some reason, which only the British understand, they decided to use the 'planes offensively.

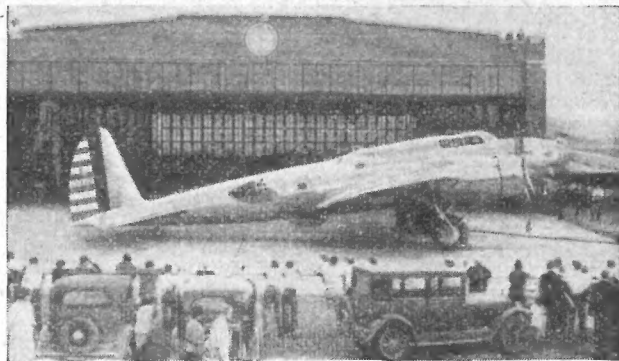
"Number One ran off the runway upon arrival in England, smashed the landing gear, and never flew again. While it sat there it was 'cannibalised'—a part taken off here and a part there until the ship was picked clean as a Thanksgiving turkey.

"Number Two was sent over Brest to take a crack at the Scharnhorst and was so badly chewed up by enemy action that it disintegrated like the one-hoss shay upon landing at Plymouth.

"Number Three was burned from pure carelessness.



THE FORTRESS I.—The sixth Boeing B-17C to be delivered to the R.A.F. and used for operations over Norway in 1941. At that time the design of the Fortress was about ten years old. The chief modification in the latest Fortress II (B-17F) is the very much more powerful armament.



THE FIRST "FLYING FORTRESS."—The original Boeing XB-17 bomber at Seattle in July, 1935, shortly before it suffered a tragic accident and was completely destroyed in taking off with locked controls.

"Numbers Four, Five and Six were flying in formation over Narvik, Norway, when they were set upon by Nazi fighters. All of them were lost. One apparently landed intact in Norway and it probably gave the Germans their first look at the American bombsight.

"Number Seven took a gallant American to his death, Lieutenant Bradley, testing equipment in the upper reaches of turbulent air currents and fast-forming ice when something happened. The sole survivor was the squadron medic.

"Number Eight was turned over to the R.A.F. experimental laboratories and continues its career as a guinea pig.

"Number Nine dove out of the clouds one day at about 1,000 ft. and continued straight into the ground.

"The remainder were then withdrawn from active operations and sent to the Middle East for employment within their limitations. We knew they were not combat worthy for we had been able to build only a few experimental models. . . . The Summer of 1941 found our Air Force working frantically to improve the Flying Fortresses. The British experience emphasised three terrible needs: The system of defensive gunnery had to be changed; it was imperative that the ships operate in considerable numbers so that interlacing fire could be assured from all angles for protective purposes; the crews had to be trained thoroughly as units."

The Boeing B-17 first flew in July, 1935. The B-17c (the Fortress I) of 1941 was the sixth version, previous to which about 50 Fortresses had been built. The B-17c was followed by the outwardly similar B-17D with more armour and protected tanks and then came the B-17E and B-17F with a modified fuselage and tail and greatly increased defensive power.

## NEW GERMAN TYPES

A FEW details of three new and revised German aircraft have been made known recently following the capture of several Me 109G single-seat fighters, Hs 129 ground attack monoplanes and Ju 87D dive bombers in the Middle East.

The Messerschmitt Me 109G2 is outwardly similar to the Me 109F. The chief differences are the installation of a 1,500 h.p. Mercedes-Benz DB.605 12-cylinder inverted Vee liquid-cooled motor in place of the 1,200 h.p. DB.601 of similar layout previously installed. The new motor, which develops its maximum power at 16,000 ft., should give the Me 109G a top speed of about 400 m.p.h.

The armament of the Me 109G is similar to that of the Me 109F (one 20 mm. Mauser MG.151 cannon through the airscrew boss and two 7.9 mm. machine-guns on the motor cowling), but provision is made for the slinging of an extra 20 mm. Mauser cannon under each wing.

Versions of the Me 109G are known to be flying with pressure cabins for operation at more than 40,000 ft. Although this aeroplane should not be underrated the Spitfire IX should have a slight advantage in combat at all heights.

The Henschel Hs 129 is a heavily armed and armoured two-motor ground attack monoplane. The version in service differs from the prototype in that it has two 600 h.p. French Gnôme-Rhône 14M radial motors in place of the 450 h.p. Argus inverted Vee motors previously installed. The top speed is not likely to be more than about 250 m.p.h.

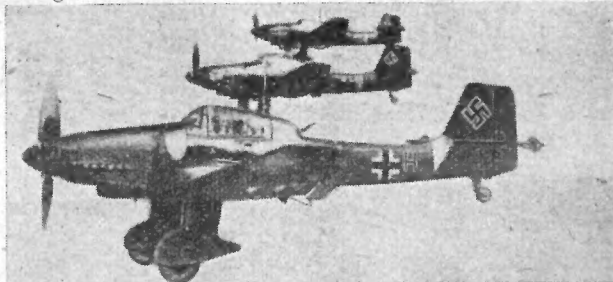
The armament is five guns—two 15 mm. cannon, one on each side of the fuselage and two 7.9 mm. machine-guns below them. A 30 mm. (1.181-in.) cannon is installed under the fuselage and fixed to fire forward. It can be replaced by a rack for a 250 kg. (551 lb.) bomb.

A great amount of armour is carried. The whole of the front of the fuselage is covered with plating varying in thick-

ness from 6 mm. to 12 mm. (0.236 in. to .472 in.). The bullet-proof windscreen has glass 3 in. thick. The under part of the motors, carburettors and oil coolers are all protected by armour 5 mm. (0.196 in.) thick.

The Junkers Ju 87D is basically similar to the Ju 87B except for the alteration in the installation of the Junkers Jumo 211FI motor, the modified shape of the cockpit cover and the undercarriage. Instead of the deep single radiator it has a single small oil cooler under the nose and two coolant radiators under the wings in a similar manner to the Me 109F.

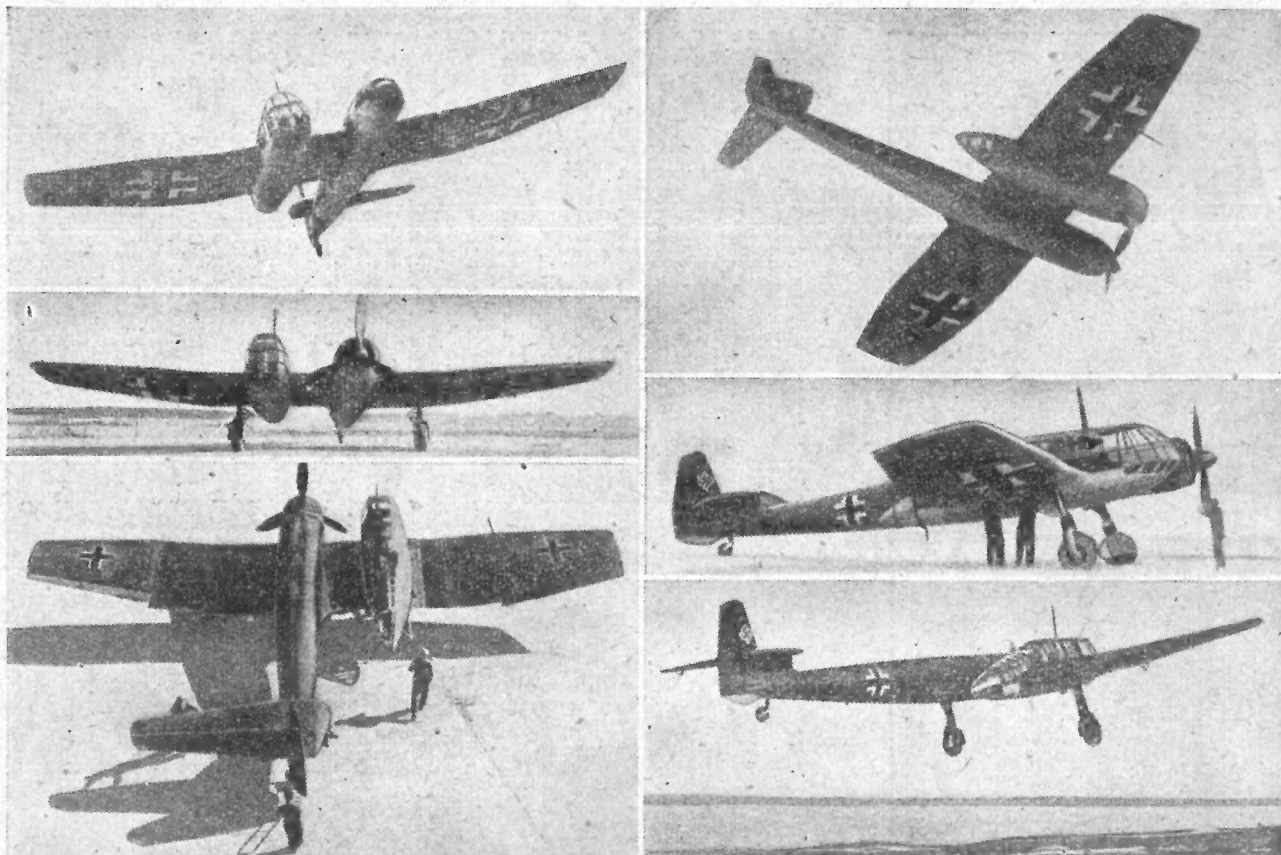
The armament is two fixed 7.9 mm. machine-guns in the wings and two movable 7.9 mm. machine-guns in the rear cockpit. The armour has been increased and now surrounds the pilot's and gunner's seats and radiators. Two sirens designed to scream in a dive are fitted to the legs of the undercarriage.



NEW BUT OBSOLETE.—The latest version of the Junkers Ju 87D—a German photograph taken over the Russian front. The Ju 87D is now being superseded in service by the Henschel Hs 129.







ASYMMETRICAL.—The unorthodox Blohm und Voss Bv 141B single-motor two-seat reconnaissance monoplane.

#### LESSER KNOWN TYPES—LIX

### THE BLOHM UND VOSS Bv 141B

A SMALL NUMBER of the unconventional Blohm und Voss Bv 141B single motor reconnaissance monoplanes have been built and reported in service with the Luftwaffe.

The first machine of the type—the Bv 141A—was designed in 1937 to give the best possible view from a single motor general purpose aeroplane. Dr.-Ing. Richard Vogt, Chief Designer of the Blohm und Voss concern, who had been toying with the idea of an asymmetrical aeroplane when he was working with the Kawasaki Aircraft Company in Japan, decided that only this unique layout would satisfy the requirements of the specification. The late Gen. Udet was approached and, to quote Vogt himself, he "at once appreciated the possibilities," with the result that permission was given to begin construction.

One year later, in 1938, the first flying trials began. Equipped with a BMW 132 single-row radial motor of about 800 h.p., the Bv 141A was similar in layout to the later model except that it had a normal symmetrical tailplane. Experiments with the new machine were successful. The weakest point was the poor field of fire from the rear of the nacelle. When the tests were completed, a bigger and more powerful type was ordered to fulfil more stringent requirements.

The new model, the Bv 141B, with a 1,600 h.p. BMW 801 two-row, radial motor has an improved field of fire backwards by the use of an asymmetrical tailplane, the patent for which was taken out by Dr. Vogt in 1939. This type of tailplane is also said to improve longitudinal stability. The blind spot on the port side of the

fuselage is not considered dangerous as any attacker taking advantage of it can quickly be "uncovered" by rolling the aeroplane a few degrees in either direction.

Exceptional powers of manoeuvre and rate of climb in addition to a heavy armament, including both cannon and machine-guns, are claimed for the Bv 141B, but photographs of this oddity were released significantly early—usually a sign of failure or limited success. The type has been reported in action on the Russian front.

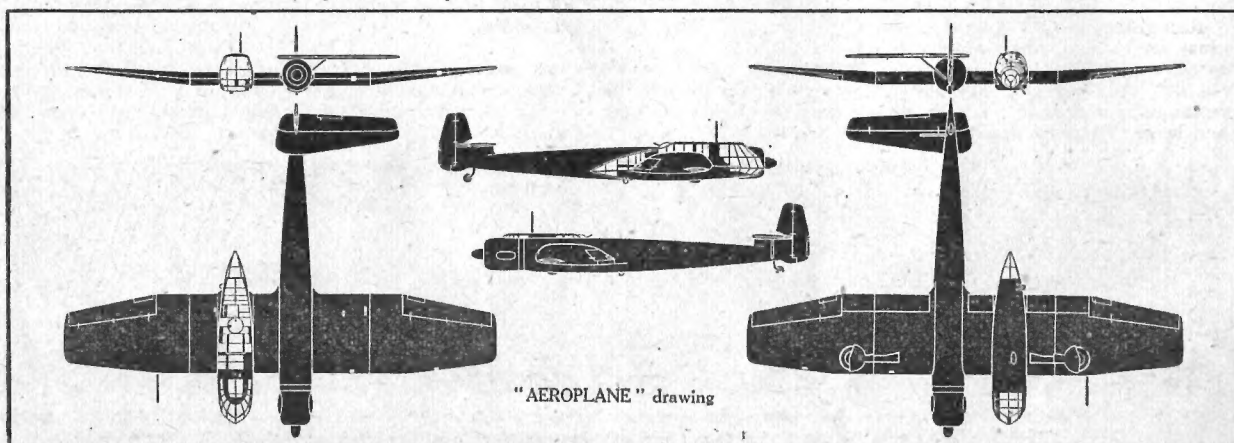
The crew of two, pilot and observer, is carried in the transparent nacelle offset to starboard. The true centre line of the span passes just inboard of the motor boom. Difficulties of lateral trim are overcome by use of the aileron trim tabs and the asymmetrical thrust is compensated by an offset fin. A wide track undercarriage is employed to correct any swinging tendency during take-off. The following figures are approximately accurate:—

**DIMENSIONS.**—Span, 63 ft. 0 in.; length, 49 ft. 0 in.; height (tail up), 16 ft. 0 in.

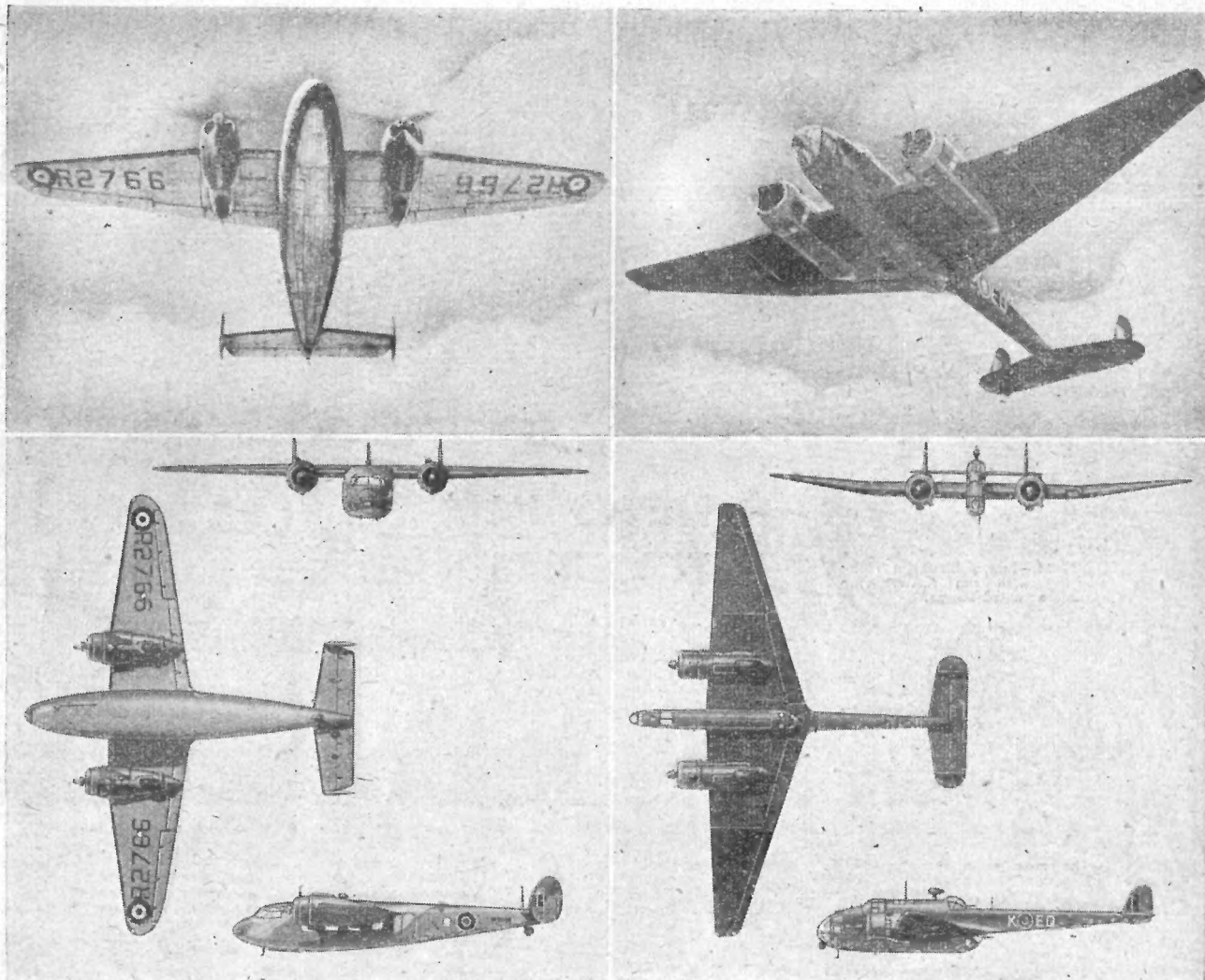
**WEIGHT.**—Loaded, about 12,000 lb.

**PERFORMANCE.**—Max. speed, about 280 m.p.h. at 18,500 ft.

**POINTS OF RECOGNITION.**—Asymmetrical aeroplane, the fuselage being offset slightly to port and the crew nacelle well to starboard of centre line. Unilateral tailplane supported on fuselage "neck," to port only. Rectangular centre section, tapered outer sections with square-cut tips. Dihedral on outer section only. Low aspect ratio.







**DETAILED ANALYSIS.**—The points by which the subjects of the previous recognition problems can be recognised are illustrated in the photographs and drawings by W. J. Everest of the de Havilland D.H. 95 Flamingo (left) and the Handley Page H.P. 52, Hampden I (right).

**T**HE de Havilland D.H.95 Flamingo (two 930 h.p. Bristol Perseus XVI motors) and the Handley Page H.P. 52 Hampden (two 1,000 h.p. Bristol Pegasus XVIII motors) were the previous recognition problems.

The Flamingo 12-seat unarmed transport aeroplane is in service for communications duties in Great Britain and overseas with the R.A.F., F.A.A., and B.O.A.C.

Recognition features from this angle are the wide fuselage with rounded nose and pronounced taper towards the tail; rounded twin fins and rudders set at the end of the rectangular tailplane, tapered high wings with rounded tips, and large, underslung radial motors.

## Aircraft Recognition



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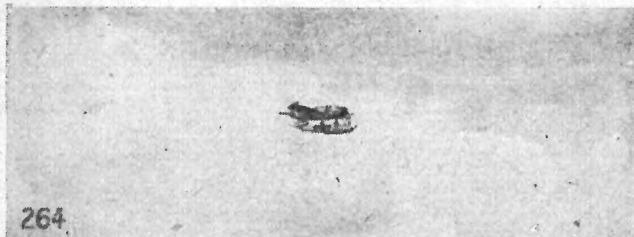
**PREVIOUS PROBLEMS.**—(Left) A Flamingo and (right) a Hampden.

Hampdens have been in service with the R.A.F. since 1937 and are now considered obsolete. Designed originally for bombing, many are still in use for mine-laying and torpedo dropping. The armament consists of five machine-guns, one fixed in the nose and two pairs hand-operated firing aft. A Mark II version has 1,100 h.p. Wright Cyclone motors.

From this angle in the air points of recognition are the sharply tapered mid-wings with most of the taper on the trailing edge, and square tips, characteristic deep and narrow fuselage with the "pan-handle" boom carrying the tail, centrally mounted radial motors, and twin fins and rudders inboard on the tailplane.

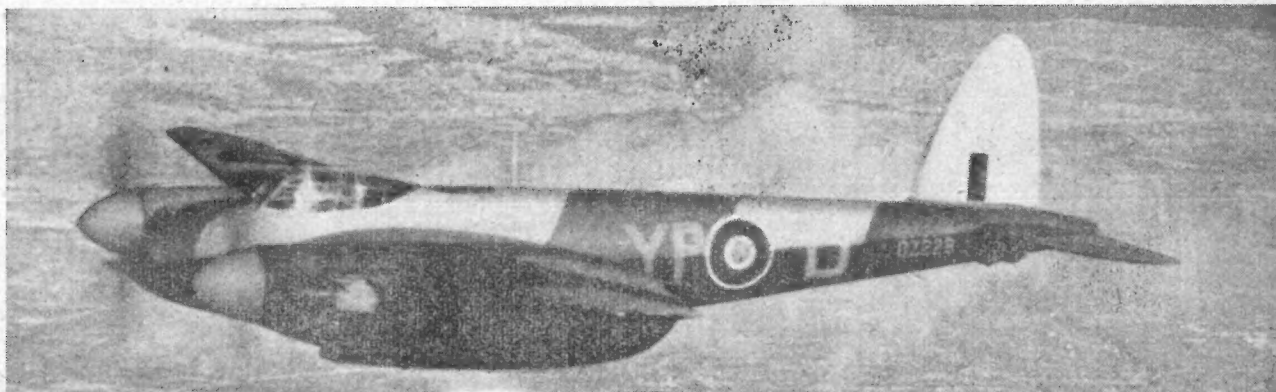


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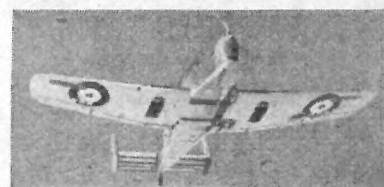
**FOR IDENTIFICATION LXXVIII.**—Two more photographs to give practice in the recognition of Allied and enemy aeroplanes. What they are and notes on their characteristics will be published with two more photographs on March 11.



**INTRUDER FIGHTER.**—A de Havilland Mosquito intruder fighter now flying from Malta on offensive operations. With four cannon and four machine-guns this machine has very heavy and concentrated fire power.



**BENGAL BLENHEIM.**—Bristol Blenheim V day bombers operating with the R.A.F. over Japanese-occupied Burma.

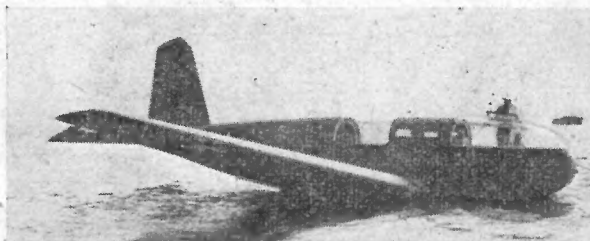


**SINGLE-MOTOR TWIN-TAIL.**—The Miles M-28 four-seat training and communications monoplane. This photograph shows well its characteristics.

## NEWS IN PICTURES



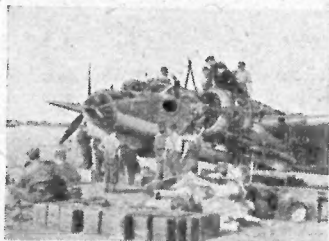
**ICED UP.**—The nose of a Douglas Boston III in Newfoundland before being flown across the Atlantic. A large external fuel tank can be seen on the left.



**THE AQUAPLANE.**—An amphibious glider developed at the Philadelphia Naval Aircraft Factory on its trials. It has a span of 72 ft. and can carry 12 men. The system of lateral stability from the wing roots recalls the English Electric Ayr flying-boat of 1924.



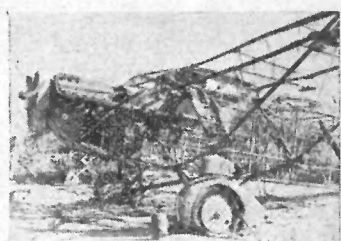
**KEEPING UP TO DATE.**—A Douglas Drago two-motor bomber with a Hamilton counter-rotating airscrew installed on a Wright Cyclone motor for flying trials.



**IN ALGERIA.**—R.A.F. ground crews refuelling and rearming a Bristol Blenheim V in North Africa.



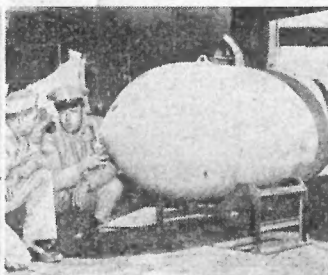
**TWIN-TAILED STUKA.**—A Junkers 87A fitted experimentally with twin fins and rudders. The enemy have thus brought it back almost to the appearance of the original Junkers K47.



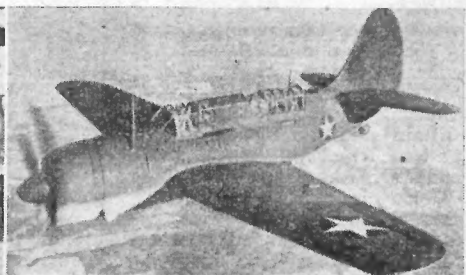
**ROMAN REMAINS.**—A Caproni Ca. III reconnaissance monoplane abandoned at Castel Benito, Tripoli.



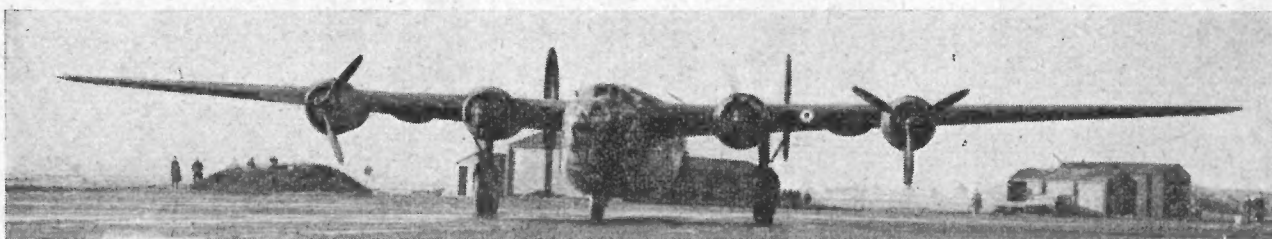
**LONG-RANGE LIGHTNING.**—A long-range tank can be seen in front of the port spinner of this Lockheed P-38 fighter.



**A BEAUTIFUL BOMB.**—An American low aspect ratio 4,000 lb. bomb ready for its tests in the U.S.A.



**ARMY DIVE BOMBER.**—The Curtiss A-25 Helldiver now being delivered to the U.S. Army as well as to the U.S. Navy.



**MINISTERIAL TRANSPORT.**—Mr. Winston Churchill's Liberator II arriving back in England after his journey to Casablanca and the Middle East.



# THE NATIONAL ASSOCIATION OF SPOTTERS' CLUBS

## GENERAL COUNCIL:

Hon. General Sec. (South): P. T. Sampson, 56, Forest Drive West, E.11.

Hon. General Sec. (North): Miss M. Duncan, 10, Eden Street, Riddrie, Glasgow

## Hon. Secs. of REGIONAL COUNCILS:

NORTHERN—T. Carver (pro tem.),  
Royal Grammar School, Eskdale Tr., Newcastle-on-Tyne.

N-EASTERN—W. Sowerby,  
9, Grange Park Pl., Leeds.

N-MIDLANDS—R. R. Langley,  
80, Cornwall Rd., Kettering, Northants.

EASTERN—J. E. Barnes,  
140, Moulsham Drive, Chelmsford.

LONDON—F. C. Palethorpe,  
38, Bridgewater Road, Alperston, Middx.

SOUTHERN—A. Marple,  
16, Bridge Street, Reading.

SOUTH-WESTERN—E. Griffiths,  
25, Charlton Ave., Filton, Bristol, 1.

WELSH—W. H. Young,  
21, Beaufort Pl., St. Julians Pk., Newport, Mon.

MIDLAND—G. C. Matthews,  
239, The Broadway, Dudley, Worcs.

NORTH-WESTERN—H. Pearson,  
12, Plymouth Street, Oldham.

SCOTTISH—Miss M. Duncan,  
10, Eden Street, Glasgow.

SOUTH-EASTERN—P. Chinery,  
"Little Hemingford," Battle, Sussex.

## NEW SPOTTERS' CLUBS

WE HAVE RECEIVED notice of the affiliation of the following new Spotters' Clubs:

No. 526.—Stowmarket and District S.C.—(Hon. Sec.: H. L. Pattle, Chestnuts, Taker's Lane, Stowmarket.) Eastern Region (No. 1).

No. 527.—E.O.F. Spotters' Club.—(Hon. Sec.: T. F. Brown, Elstow Ordnance Factory, Kempston Hardwick, Bedford.) Eastern Region (No. 1).

No. 528.—Chichester High School for Boys.—(Hon. Sec.: B. Chiverton, Pewanporth, Chichester Road, Bognor.) South Eastern Region (No. 12).

No. 529.—West London "Wildcats" S.C.—(Hon. Sec.: A. H. Lorie, 16, Wetherby Gardens, London, S.W.5.) London Region (No. 3).

No. 530.—Blackfen Old Scholars Association S.C.—(Hon. Sec.: K. F. White, 122, Sherwood Park Avenue, Sidcup.) London Region (No. 5).

No. 531.—18th Royal Eltham Air Scouts S.C.—(Hon. Sec.: E. Perkins, 178, Green Lane, Eltham, S.E.9.) London Region (No. 5).

No. 532.—No. 780 Liverpool Collegiate School Sqn. A.T.C. S.C.—(Hon. Sec.: L. J. Rogers, 12, Ritchie Avenue, Liverpool, 9.) North West Region (No. 10).

No. 533.—Newcastle Royal Grammar School S.C.—(Hon. Sec.: D. Morris, 20, Newlands Terrace, Penrith, Cumberland.) North West Region (No. 10).

No. 534.—Metal Box Co., Ltd. (Worcester) S.C.—(Hon. Sec.: C. Jones, 102, Northwick Road, Worcester.) Midland Region (No. 9).

No. 535.—Blunell's S.C.—(Hon. Sec.: H. Turnpenny, "Wagster Cottage," Newton, Shusstone, Warwick.) Midland Region (No. 9).

No. 536.—Unippenham A.T.C. S.C.—(Hon. Sec.: H. G. Fisher, c/o Upper Farm, Hardenhuish, Chippenham.) South Western Region (No. 7).

No. 537.—Bray and Holyport Air Scouts S.C.—(Hon. Sec.: R. J. Day, 5, Ivy Terrace, Honey Row Green, Holyport, Maidenhead.) Southern Region (No. 6).

No. 538.—The Tees-side S.C.—(Hon. Sec.: A. E. Buttress, 41, Hambleton Road, Middlesbrough.) Northern Region (No. 1).

NINTH EXECUTIVE COMMITTEE MEETING

THE NINTH MEETING of the Executive Committee of the General Council took place in London on February 2. Five members of the Committee were present. Mr. S. F. Sabin was in the Chair.

Mr. Murray, in the absence of Mr. Andrews, reported on the progress being made in the production of Third Class Test Cards. A following discussion revealed the need for Second Class Test Cards. Members of the Committee were asked to commence preliminary investigations.

Other matters brought up for discussion included the issue of the Inter-Services Journal upon Aircraft Recognition, the possibility of publishing, in pamphlet form, the notes entitled "The National Association of Spotters' Clubs," and suggestions for recommending modifications of the constitution to the Annual General Meeting.

Members regretted that a special N.A.S.C. edition of the "Raid Spotters' Notebook" containing a complete list of clubs with the addresses of

## PHOTOGRAPHIC SILHOUETTE—XXVI



The Boeing Fortress II.

club hon. secretaries and the aeroplanes in the proficiency tests could not be produced this year.

## TENTH EXECUTIVE COMMITTEE MEETING

FIVE MEMBERS of the Executive Committee of the General Council were present at the tenth meeting of the Committee held in London on Feb. 16. Also present were Mr. P. G. Masfield, Hon. Organising Secretary of the N.A.S.C., and Mr. M. R. T. Edwards, Hon. Treasurer of the N.A.S.C. Mr. S. F. Sabin was in the Chair.

Resolutions put forward by the Southern Regional Council were considered at great length and the members of the Committee decided that it would be advisable for some of them to attend the next meeting of the Southern Regional Council in accordance with Rule No. 45 of the constitution.

Mr. Edwards and Mr. Andrews reported on the improving financial position.

Among the other items discussed were increased publicity for the N.A.S.C., possible amendments to the constitution, notes for Regional Hon. Secretaries, and N.A.S.C. publications.

## N.A.S.C. LIBRARY

THE RAID SPOTTERS' Note Book is now out of print but fresh supplies will be available shortly. No delivery date can yet be promised for the limited issue of N.A.S.C. Test Cards. In order to avoid confusion with other accounts of

the N.A.S.C., all inquiries for Library supplies should in future be addressed personally to the Hon. Asst. Organising Secretary as follows:—C. F. Andrews, Orchard, Lower Knapthill, Woking, Surrey, and marked "N.A.S.C. Library." Cheques and Postal Orders should be made payable to the N.A.S.C. Library Fund.

## NORTH-WEST REGIONAL COUNCIL

THE Quarterly Meeting will be held on March 20 at the Bolton Town Hall at 14.30 hrs. All Clubs in the Region are invited to send representatives.

## CHANGE OF MEETING NIGHT

WILL ALL CLUBS in the London Region please note that the Training Officers meetings which used to be held on the first Tuesday in every month are now to be held every fourth Tuesday as from Mar. 9.

## CORRECTION

MR. B. DIBDEN, Hon. Secretary of the London Regional Council Competitions Sub-committee, asks us to correct a recent notice to clubs in the London Region. Rule No. 3 for the Aircraft Recognition Contest should read: "No team may include more than one member of a previous team which won either of the two trophies."

Scale Model Contest Rule No. 1 should read: "1/72nd scale" and not "1/22nd scale."

## "EVANS OF THE BROKE" RAID SPOTTERS' CONTEST

A FURTHER CONTEST for the London Region "Evans of the Broke" Raid Spotters' Trophy will be held in the Science Museum, 8th Kensington, on Monday, Mar. 15, at 19.00 hrs. Teams should take with them their completed entrance forms and the entrance fee of 1s. per team. Admiral Sir Edward Evans, K.C.B., D.S.O., will be present at the contest to present the trophy.

## WINGS FOR VICTORY CONTEST

AN AIRCRAFT RECOGNITION contest is to be held in Uxbridge during the Wings for Victory Week. Organized by No. 91 Denham Spotters' Club, the contest will be open to a team of three competitors from each of the clubs in the London Region. An entrance fee of 2s. 6d. will be charged for each team and the total receipts will be converted into savings certificates and presented to the winning team.

All teams wishing to compete should contact Mr. Devery, Hon. Sec., No. 91 Spotters' Club, Denham Studios, Middlesex, not later than Saturday Mar. 6.

## BINGHAM GADD TROPHY

THE semi-finals and final of the Bingham Gadd Trophy Regional competition will be held at the Bolton Town Hall on March 6 at 14.30 hrs. The contest can be seen by anyone interested.

## SPOTTERS IN DANBY-DALE

MR. JACK WINDLE, of 6, Vew Tree, Shepley, Mr. Huddersfield, is hoping to form a Spotters Club in the Danby-Dale area. All interested are invited to get in touch with him.

## FORTHCOMING EVENTS

**February 25**  
Harrow—Kodak Social Club.—19.30 hrs.—(S.C. 75.)  
Doncaster.—C.D.I. Room, 21, French Gate.—19.00 hrs.—(S.C. 106.)  
Guildford.—County Technical College, Stoke Park.—19.30 hrs.—(S.C. 150.)  
Seaham.—Rock House.—18.30 hrs.—(S.C. 230.)  
Crosby.—St. Mary's College.—19.00 hrs.—(S.C. 320.)  
Battersea Men's Institute.—Latchmere Rd.—19.45 hrs.—(S.C. 483.)

**February 26**  
Kentish Town.—North Western Polytechnic, Prince of Wales Rd.—18.30 hrs.—(S.C. 16.)  
Sunderland.—Town Hall.—19.30 hrs.—(S.C. 37.)  
Preston.—Central Police Station.—19.30 hrs.—(S.C. 249.)  
Ratcliffe College.—20.00 hrs.—(S.C. 331.)

**February 27**  
Bristol.—A.R.P. Hdqrs., 55, Broadmead.—14.00 hrs.—(S.W. Regional Council.)  
Watford Public Library.—19.30 hrs.—(S.C. 118.)  
Hendon Technical Institute.—18.30 hrs.—(S.C. 124.)

**March 1**  
London.—I.R.C. General Meeting.—Geological Museum, South Kensington.—19.00 hrs.  
Southampton.—A.R.P. Central Division Hdqrs., 61, Highfield Lane.—19.00 hrs.—(S.C. 94.)  
Wallingford.—A.T.C. Hdqrs., Woodcote Rd.—(S.C. 367.)

**March 2**  
Southend.—A.R.P. Hdqrs., 120, Victoria Av.—19.00 hrs.—(S.C. 1.)  
Wembley.—Palace of Arts.—18.30 hrs.—(S.C. 71.)  
London.—Meeting of Executive Committee of General Council.—Bowling Green Lane, E.C.1.—18.00 hrs.  
London, N.7.—Northern Polytechnic, Holloway Rd.—19.00 hrs.—(S.C. 156.)  
Crosby.—St. Mary's College.—19.00 hrs.—(S.C. 320.)

**March 3**  
Sunderland.—Sons of Temperance Room, Norfolk Street.—19.30 hrs.—(S.C. 37.)  
Watson-on-Thames.—Anglo-Iranian Oil Co., Ltd., New Zealand Av.—(S.C. 96.)  
Rickmansworth.—112, High Street.—19.30 hrs.—(S.C. 81.)  
Bagenham.—Ford's Sports Pavilion, Kent Avenue.—19.00 hrs.  
Bristol.—Junior Commercial School, Redcross St.—18.30 hrs.—(S.C. 104.)  
Dudley.—Hen and Chickens Inn.—19.30 hrs.—(S.C. 113.)  
Sheffield.—Victoria Hall.—19.00 hrs.—(S.C. 178.)

Wigan Town Hall.—19.15 hrs.—(S.C. 266.)  
Newcastle.—Crow's Nest Hotel.—19.00 hrs.—(S.C. 272.)

**March 4**  
Doncaster.—C.D.I. Room, 21, French Gate.—19.00 hrs.—(S.C. 106.)  
Guildford.—County Technical College, Stoke Park.—19.30 hrs.—(S.C. 150.)  
Seaham.—Rock House.—18.30 hrs.—(S.C. 230.)  
Crosby.—St. Mary's College.—19.00 hrs.—(S.C. 320.)  
Battersea Men's Institute.—Latchmere Rd.—19.45 hrs.—(S.C. 483.)

**March 5**  
Birmingham.—Civic House, Charles St.—14.30 hrs.—(Midland Regional Council.)  
Huddersfield.—A.R.P. Hdqrs., South Parade.—19.00 hrs.—(S.C. 49.)  
Huddersfield.—The Clock House.—19.30 hrs.—(S.C. 128.)  
Stapleford.—Constitutional Club.—(S.C. 159.)  
Oxford.—City Police Station.—19.30 hrs.—(S.C. 162.)  
Preston.—Central Police Station.—19.30 hrs.—(S.C. 249.)  
Ratcliffe College.—20.00 hrs.—(S.C. 331.)  
Cambridge.—Eastern Regional Council Meeting.—Guild Hall, Cambridge.—11.00 hrs.

**March 7**  
Hatfield.—(S.C. 4.)  
Appleby.—Grammar School.—(S.C. 411.)

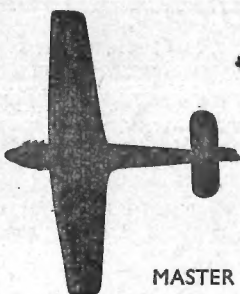

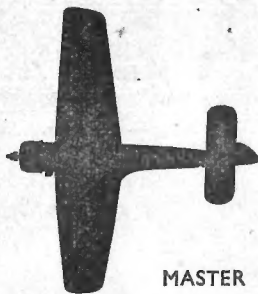
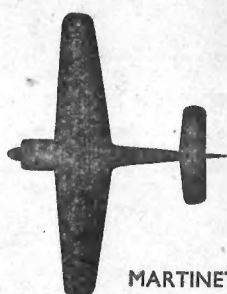
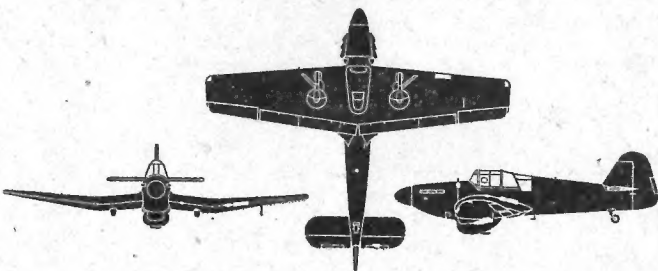
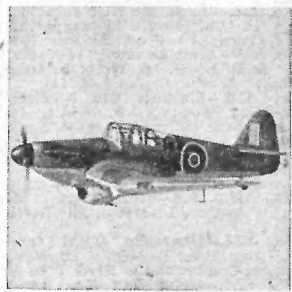
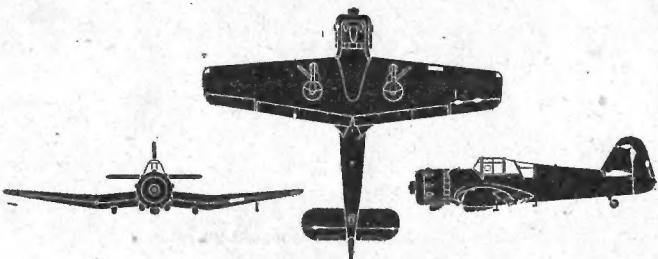
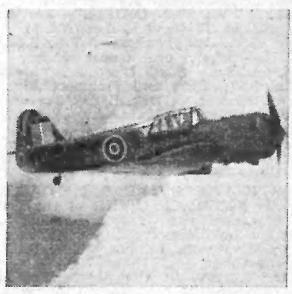
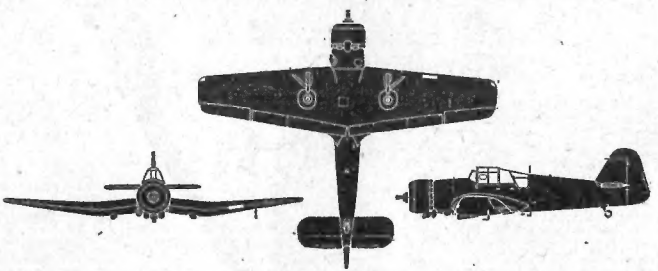
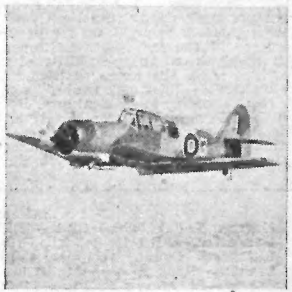
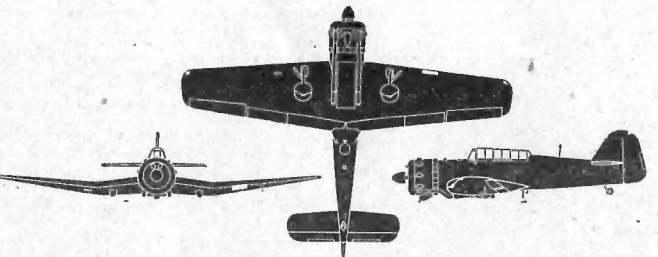

**March 8**  
Hendon Technical College.—19.30 hrs.—(S.C. 124.)  
Southover.—Burntash Lane.—19.15 hrs.—(S.C. 454.)

**March 9**  
Hatfield.—(S.C. 4.)  
Streatham Common.—St. Joseph's College, Crown Point.—19.00 hrs.—(S.C. 13.)  
London.—Third Training Officers' Monthly Meeting, London Region.—Certificated Club Training Officers and Deputies, only.—Regional Training School, South Kensington.—18.45 hrs.  
London, N.7.—Northern Polytechnic, Holloway Rd.—19.00 hrs.—(S.C. 156.)  
Ratcliffe College.—20.00 hrs.—(S.C. 331.)

**March 10**  
Blackfriars.—Unilever House.—18.00 hrs.—(S.C. 12.)  
Bristol.—Junior Commercial School, Redcross St.—18.30 hrs.—(S.C. 104.)  
Belfast.—45, Howard St.—(S.C. 151.)  
Sheffield.—Geo. Senior and Sons, Ltd., Ponds Forge, Sheaf St.—19.00 hrs.—(S.C. 178.)  
Hackney.—E.8.A.R.P. Hdqrs., 219, Mare St.—19.00 hrs.—(S.C. 181.)  
Wigan Town Hall.—19.15 hrs.—(S.C. 266.)  
Newcastle.—Crow's Nest Hotel.—19.00 hrs.—(S.C. 272.)

## AIRCRAFT COMPARISONS—LXXVIII

## WOOD TRAINERS

 <p>MASTER I</p>	 <p>MASTER II</p>	 <p>MASTER III</p>	 <p>MARTINET I</p>
<p>SPAN: 35 ft. 9 in. LENGTH: 30 ft. 5 in. HEIGHT: 11 ft. 6 in. LOADED WEIGHT: 5,350 lb. MAX. SPEED: 226 m.p.h. at 15,000 ft. One Rolls-Royce Kestrel XXX upright Vee motor, 715 h.p.</p>	<p>PHILLIPS AND POWIS MILES MASTER I</p> 		
<p>SPAN: 35 ft. 9 in. LENGTH: 29 ft. 6 in. HEIGHT: 11 ft. 7 in. LOADED WEIGHT: 5,350 lb. MAX. SPEED: 243 m.p.h. One Bristol Mercury XX radial motor, 840 h.p.</p>	<p>PHILLIPS AND POWIS MILES MASTER II</p> 		
<p>SPAN: 35 ft. 9 in. LENGTH: 30 ft. 2 in. HEIGHT: 11 ft. 7 in. LOADED WEIGHT: 5,400 lb. MAX. SPEED: 232 m.p.h. at 7,500 ft. One Pratt and Whitney Twin Wasp Junior SB4-G radial motor, 825 h.p.</p>	<p>PHILLIPS AND POWIS MILES MASTER III</p> 		
<p>SPAN: 39 ft. 0 in. LENGTH: 30 ft. 11 in. HEIGHT: 11 ft. 7 in. LOADED WEIGHT: 5,300 lb. MAX. SPEED: 230 m.p.h. One Bristol Mercury XX radial motor, 840 h.p.</p>	<p>PHILLIPS AND POWIS MILES MARTINET I</p> 		

**TRAINING AND TOWING.**—The Master I was designed to absorb the many Kestrel motors which had been built for the Hawker biplanes and had been left unused when the Hind production had ceased. Master production used up the available Kestrels and subsequent Masters were equipped with Bristol Mercury and Twin Wasp Junior radial motors. Although pupils no longer proceed from liquid-cooled trainer to a liquid-cooled fighter, they enjoy the higher performance of the more powerful Master II and III. The Martinet is a development of the Master II intended for target towing duties. Chief differences are the revised cabin and the addition of a large box for the towing apparatus under the fuselage. All Masters now have the square-cut wing tips.



# CORRESPONDENCE

## CONSTELLATION PERFORMANCE

**I**N YOUR ISSUE of Jan. 28, you published a photograph and details of the Lockheed C-69 (Constellation) which is a military transport. This was designed to carry a light tank or about 60 troops at a cruising speed of 280 m.p.h.

Would you say that this was another exaggerated American statement, because, if so, this would put the top speed in excess of 300 m.p.h., which sounds fantastic for a transport such as it is supposed to be. J. BENNETT.

[The top speed of the Constellation at its best height is certainly more than 300 m.p.h.—probably between 330 and 350 m.p.h. when flying light. This very high performance is attained by the use of four of the most powerful radial motors at present in general use—Wright Duplex Cyclone 18-cylinder motors which develop more than 2,000 h.p. each. They are equipped with exhaust-driven turbo-superchargers which give maximum performance at about 25,000 ft. The following statements have been made in America concerning the Constellation:—

(i) Non-stop range about 4,000 miles.

(ii) Capacity for 57 seated passengers or a large number of troops or a light tank. Crew of nine.

(iii) Fuel consumption one U.S. gallon per air-mile at full load.

(iv) Height of 25,000 ft. can be maintained on three motors, or 16,500 ft. on two motors.

(v) Cruising speed 280 m.p.h.

(vi) Top speed about 350 m.p.h.

Obviously all the statements cannot be reconciled. The 4,000-mile range is probably attained at a reduced cruising speed with no pay-load.—Ed.]

## C.G. AND BOMB LOADS

**I**HAVE NOTICED recently that in some aeroplanes, particularly the Dornier bombers and the Me 210, the bomb doors are spaced far in front or behind the place where I presume the centre of gravity usually is, i.e., about two-thirds of the way forward from the trailing edge of the wing. Do the bombs, then, not always need to be equally spaced in front and behind the centre of gravity, or is the latter, in these cases, in a different place?

MICHAEL N. MORSS.

[Bomb bays are usually situated at or near the centre of gravity of an aeroplane. That of the Me 210 is perhaps slightly ahead. In general a slight forward movement of the C.G. is not harmful, although a rearward movement is. The C.G. should be ahead of the centre of pressure, which is liable to change with the attitude of the wing and may even come in front of the leading-edge.—Ed.]

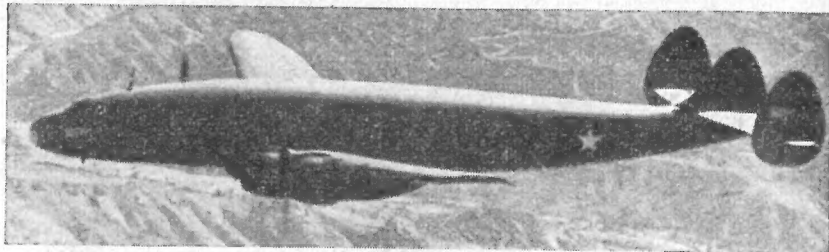
## NIGHT NOISES

**I**WOULD LIKE to add my contribution to the Recognition by Sound contest:—

For the past few clear nights I have been trying out night recognition with the aid of London's searchlights. I have found out from this experiment that our heavy bombers all have the throbbing sound of the German night raiders. How then, might I ask, can the sound experts, who have not had much experience of the Nazi night raiders, tell the difference between our bombers returning and enemy bombers coming?

Also, at certain times an Oxford flying at about 7,000 ft. sounds very much like a raider.

B. D. EGGLETON (S.C. No. 135).



THE LOCKHEED C-69, THE CONSTELLATION

## TARGET TOWERS

**C**OULD YOU please tell me whether the Boulton Paul Defiant has been adapted as a target tower. I saw one recently towing a target behind it.

A. F. VINE.

[Yes, in company with the Skua, the Roe, the Henley, the Battle and the Martin.—Ed.]

## HEIGHT FINDING

**I**HAVE worked out a scheme for finding the height of aircraft fairly accurately with only binoculars as an instrument.

On the binoculars which I use there is a "Graticule" system of calibration of which the ratio is 1:100.

When the aeroplane is identified it is noted into how many graticules the span or length fits. A rough estimate of the span ought to be known and the distance of the aeroplane can be found on the graph. The vertical height is known by finding the angle of elevation and multiplying the distance by the sine of the angle. This is done in the table; only approximate angles are necessary.

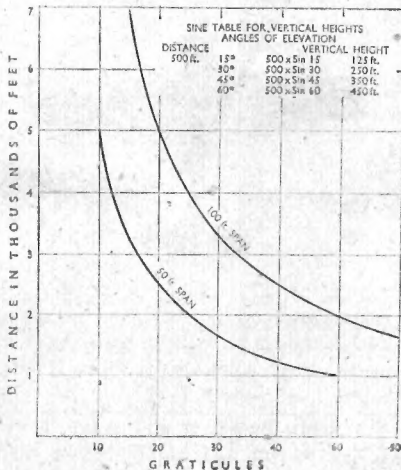
Example: I spotted a Lightning the other day and the span covered 20 graticules. The span of a Lightning is 52 ft. but 50 is near enough. So I looked at the graph. The 50-ft. span one (the lower) at 20 graticules' distance 2,500 ft. and angle of elevation 45 degrees (finger method). Therefore, on the sine table its height was 1,750 ft.

I can find the height in three seconds with practice. The method can be adopted for different glasses.

JOHN E. M. JEFFERS,

S.C. 35 and A.T.C.

[The system would appear to be reasonably accurate so long as the span or length is not seen fore-shortened. If the head-on, plan or side views are seen the heights calculated should be about right.—Ed.]



## THE HESTON-NAPIER RACER

**I**N CONNECTION with the correspondence on the fastest aeroplane in the World, I was rather surprised to see that no mention was made of the Napier-Nuffield-Heston racer, which it was announced was being constructed in 1940.

I understand that it was equipped with a Napier Sabre motor and completed late in 1940, but no mention has been made of the machine in the Press. Unfortunately, when tested it had a landing speed of 130 m.p.h. and was totally destroyed when it crashed after its third flight. It had previously attained a maximum speed of 520 m.p.h. but never officially broke the World's speed record, although undoubtedly it would have done so had it survived long enough to make the attempt.

D. S. SMITH,

Hon. Sec. S.C. 383.

[Mr. Smith is misinformed. The Heston-Napier racer crashed on its first flight after a half circuit, being forced to land because of overheating. The machine was stalled at about 20 ft. and broke its back. Thus it never had a chance to show its paces and did not exceed about 200 m.p.h. on its circuit. Nevertheless a top speed of about 480 m.p.h. should have been attained had all gone well, although 520 m.p.h. would have been beyond its powers.—Ed.]

## THE MAXIM GORKI

**C**OULD you publish the dimensions and speed of the Maxim Gorki which crashed in 1935?

GORDON J. STEWART.

[The particulars of the Maxim Gorki (the A.N.T. 20) were:—Span, 210 ft.; maximum speed, 149 m.p.h.; range, 1,240 miles at 137 m.p.h. Normally it could carry between 60 and 70 passengers. It was powered with eight 850 h.p. M-34 engines, six in the leading edges of the wings (three on each side of the fuselage) and two motors in tandem mounted above the fuselage.

Only one was built and it crashed in 1935, with heavy loss of life, after a small training biplane had collided with it. Sixteen further developments of the Maxim Gorki were ordered and renamed L.760s. So far as is known only one was built. Presumably the urgent need to concentrate on the production of smaller military aeroplanes prevented the original plan being followed.—Ed.]

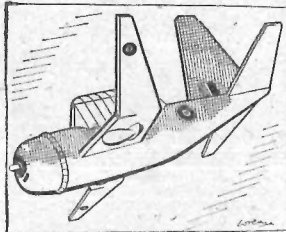
## ONE ONLY

**A**TWIN-rudder Bristol Beaufighter has been seen quite often flying over this part of the country—one type of aeroplane I think few people have seen.

R. TETT.

[Only one Beaufighter with twin fins and rudders was built—for experimental purposes solely.—Ed.]

## ODDENTIFICATION—XCVI



The Vultee Vengeance I

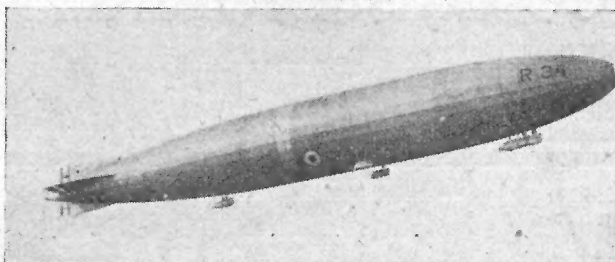
## DO YOU KNOW?—XLIX

1. Two British two-motor aeroplanes with radiators buried in the centre section?
2. A mid-wing bomber with "gull wing"?
3. The number of landing flaps on the Whirlwind I?
4. Where the two brakes are now fitted on the Do 217E2?
5. How many and what make of engines are fitted to the Piaggio P.108B?
6. Of what aeroplane company R. K. Pierson is Chief Designer?
7. The name of the Jap dive bomber with elliptical wing and fixed undercarriage which was used over Pearl Harbour?
8. The names usually applied to the Russian IL-2 and I-15?
9. A Messerschmitt aeroplane with a pressure cabin?
10. Two two-motor aeroplanes in which the wheels turn through 90 degrees when retracting?

## ANSWERS TO "DO YOU KNOW?"—XLVIII

1. Marauder.
2. The Do 217E2 has slots on the fins to improve stability in a sideslip.
3. De Havilland Flamingo.
4. (i) Twin fins and rudders, (ii) two fins, three rudders, (iii) one rudder.
5. In the motor nacelles.
6. De Havilland Albatross.

## FAMOUS AIRCRAFT—V



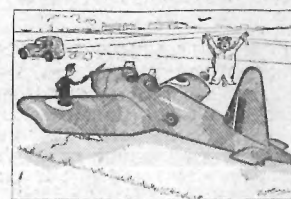
THE R.34—1919 to 1921.—On July 2, 1919, the British airship R.34 left East Fortune, near Edinburgh, for a trans-Atlantic flight to the U.S.A.—the first air crossing from East to West. Rough weather was encountered but the airship weathered the storms and adverse winds and landed on Hazelhurst Field, Mineola, Long Island, with only 40 minutes available fuel left in her tanks. The distance covered was 2,720 statute miles and the time taken was 108 hrs. 12 mins.—an average of 25 m.p.h. The airship was moored out in the open at Mineola on the three-wire system, and on July 9 began the return flight. This took 75 hrs. 3 mins. The Air Ministry Instructions issued on adverse weather reports from Scotland directed the ship to be landed at Pulham, Norfolk. The design of the R.34 had been based on the German Zeppelin L.33 which was brought down in Essex almost intact in September, 1916. The airship was built by William Beardmore and Company of Glasgow, and was launched in March, 1919. It cost £350,000. In 1921 the R.34 was wrecked through striking high ground in poor visibility after a flight over the North Sea. There was no loss of life. Five Sunbeam-Coatalen "Maori IV" 12-cylinder motors of 275 h.p. each gave it a maximum speed of 62 m.p.h. The length of R.34 was 643 ft. and its maximum diameter 79 ft. The capacity was 1,960,000 cubic ft. and the gross lift was 59.2 tons with a disposable lift of 26.5 tons. The R.34 began the outward trans-Atlantic flight with 4,900 imp. gals. (15.8 tons) of fuel. R.33, its sister ship, and the only other airship built in this class, became famous in a struggle of 30 hrs. against adverse winds in the North Sea after being torn away from her mooring on Pulham mast by a storm and badly damaged in the nose. R.33 was also used for experiments in launching and hooking on Gloster Grebe biplane fighters.

7. (i) Seven, (ii) twenty-four, (iii) fourteen.
8. Oxford IV has in-line D.H. Gipsyqueen IV engines; Oxford V has radial Pratt and Whitney Twin Wasp Junior engines.
9. (i) Macchi C.200 (Lightning), (ii) Cant. Z.506B (Heron), (iii) Savoia Marchetti S.M.81 (Bat).
10. Beaufighter I.

## BACK ISSUES WANTED

BACK ISSUES OF THE AEROPLANE SPOTTER will be bought by the Back Issue Exchange at the following prices:—For issues 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 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999, 1000.

## ODDENTIFICATION—XCVII



The Phillips and Powis Miles M-18

## SPOTTERS IN N.W. BIRMINGHAM

THE formation of a Spotters' Club is proposed in the North-West Birmingham Area (Handsworth, Perry Barr and Great Barr districts). Anyone interested should communicate with Mr. E. G. Sanders, 110, Blakeland Road, Perry Barr, Birmingham, 22B.

## INDEX TO R.O.C.C. JOURNAL

BECAUSE of paper restrictions the issue of the index to the R.O.C.C. Journal is strictly limited. Subscribers are again reminded that application for the index should be made on the form printed on the inside back cover of the final issue of the Journal. Spare forms are now obtainable from Branch Secretaries.

## NEW MEMBERS WANTED

AFTER many difficulties accommodation has now been secured by S.C. No. 483 (Wandsworth and District) at the Battersea Men's Institute, Latchmere Road, S.W.11, and meetings will be held there every Thursday, commencing at 19.45 hrs. All those interested may attend.

S.C. No. 380 (Bexhill A.T.C. Sqdn.) is now opening its membership to Spotters living locally. Details from Hon. Sec.: Lester Roberts, "Windyridge," Ninfield Road, Nr. Bexhill-on-Sea.

## THE SPOTTERS' GLOSSARY OF AERONAUTICAL TERMS

**THERMOMETER.**—An instrument for measuring temperatures. Three different systems are employed. The Fahrenheit scale records freezing point of water at 32 degrees and boiling point at 212 degrees; the Centigrade scale registers freezing point at 0 degrees and boiling point at 100 degrees; the Reamur scale has a freezing point of 0 degrees and a boiling point of 80 degrees. Absolute minimum temperatures are  $-273.16$  degrees Centigrade or  $-459.7$  degrees Fahrenheit.

**THICKNESS RATIO.**—In an aerofoil its chord divided by its maximum depth. In modern cantilever wings the average thickness ratio is about 6:1.

**THREE-POINT LANDING.**—When the three wheels (or two wheels and tail skid) of an aeroplane touch down simultaneously on landing.

**THRUST.**—The force exerted by an airscrew along its thrust line.

**THUNDERSTORM.**—Strong convectional movements in the atmosphere which give rise to intense vertical currents of air. Thunderstorms are usually heralded by towering cumulonimbus clouds followed by heavy rain or hail, thunder and lightning.

**TORNADO.**—A violent whirling wind-storm of small radius which advances over land while circling round its centre. Strong ascending currents of air form in the region of a tornado.

In West Africa a tornado is defined as a squall accompanying a thunderstorm.

**TORQUE.**—The moment of the aerodynamic forces about the thrust line of an airscrew which tends to turn the aeroplane in the opposite direction to that in which the airscrew is rotating.

**TRACK.**—A course followed by projection of the path of the centre of gravity of an aeroplane on to the surface of the Earth.

**TRACK ANGLE.**—The angle, at any moment, between the track of an aeroplane and the meridian, measured clockwise from 0 degrees to 360 degrees.

(To be continued.)



**WHERE AND WHAT?**—Two more problems to test your knowledge. Last fortnight's problems were (left) loading bombs on to the external racks of a Bristol Beaufort and (right) a Handley Page Hampden.

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